

50Ω 20 dB Coupling 40 to 1000 MHz

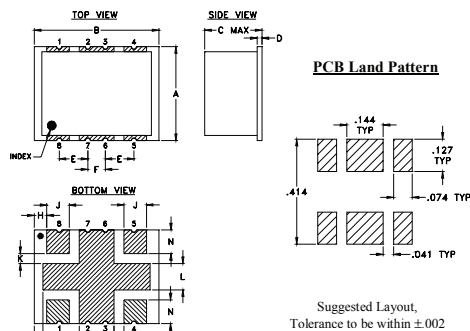
Maximum Ratings

*Operating Temperature, Case -40°C to 85°C
 Storage Temperature -55°C to 100°C
 * Case temperature is defined as temperature on ground leads.
 Permanent damage may occur if any of these limits are exceeded.

Pin Connections

INPUT	8
OUTPUT	1
COUPLED (forward)	5
COUPLED (reverse)	4
GROUND	2,3,6,7

Outline Drawing

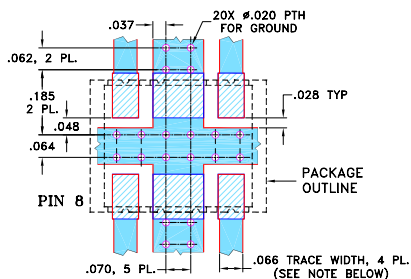


Outline Dimensions (inch mm)

A	B	C	D	E	F	G
.38	.50	.25	.020	.115	.070	.035
9.65	12.70	6.35	0.51	2.92	1.78	0.89
H	J	K	L	M	N	wt
.050	.090	.040	.105	.140	.095	grams
1.27	2.29	1.02	2.67	3.56	2.41	0.80

Demo Board MCL P/N: TB-349

Suggested PCB Layout (PL-246)



NOTES:

- TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
- DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
- DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Notes

- Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Features

- high power, 10W max.
- wideband multi-octave
- low mainline loss, 0.4 dB typ.

Applications

- VHF/UHF receivers/transmitters
- cellular

Bi-Directional Coupler Electrical Specifications

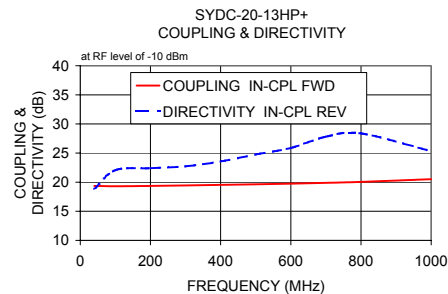
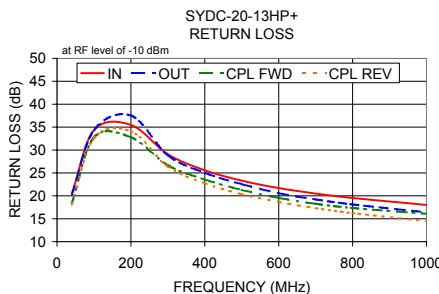
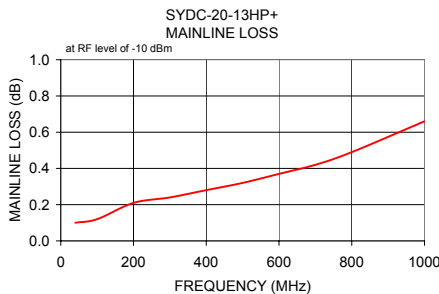
FREQ. (MHz)	COUPLING (dB)	MAINLINE LOSS ¹ (dB)	DIRECTIVITY (dB)	VSWR (:1)	POWER ² INPUT (W)
f_L - f_U	Nom. Flatness	Typ. Max.	Typ. Min.	Typ.	Max.
40-1000	20±1.0 ±0.9	0.4 1.1	28 14	1.55	10

1. Mainline loss includes theoretical power loss at coupled port.

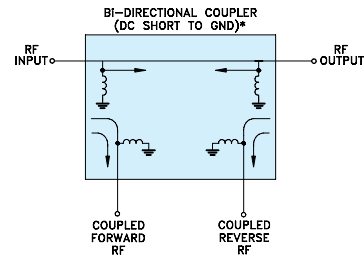
2. The user must provide adequate means of heat removal to limit the temperature of ground connections 2,3,6,7 to 85°C, in order to ensure proper performance. At 25°C ambient temperature this requires thermal resistance of the user's PC board heat sink to be 27°C/W or less when the unit is driven at maximum specified RF input power, 10W. At higher ambient temperature, with the same heat sink, input power in watts must not exceed 10W x (85°C - T_{AMBIENT}) ÷ 60°C.

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB)	Coupling (dB)		Directivity (dB)		Return Loss (dB)			
		In-Out	In-Cpl Fwd	Out-Cpl Rev	Out-Cpl Fwd	In-Cpl Rev	In	Out	Cpl Fwd
40.00	0.10	19.36	19.51	19.01	18.84	20.45	20.20	18.37	18.14
100.00	0.12	19.30	19.34	25.29	22.07	34.36	34.34	32.77	32.57
200.00	0.21	19.35	19.50	28.64	22.40	35.48	37.54	32.79	34.08
300.00	0.24	19.44	19.64	30.84	22.72	29.08	28.84	26.69	26.39
400.00	0.28	19.54	19.79	33.82	23.56	25.58	25.01	23.56	22.77
500.00	0.32	19.64	19.95	37.70	24.76	23.31	22.56	21.29	20.34
600.00	0.37	19.75	20.12	38.46	25.88	21.69	20.56	19.54	18.67
700.00	0.42	19.88	20.29	33.39	27.81	20.49	19.21	18.26	17.32
800.00	0.49	20.05	20.48	28.31	28.38	19.53	18.13	17.35	16.22
1000.00	0.66	20.51	20.83	20.87	25.33	18.01	16.40	16.08	14.50



Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMERS THAT ROUTES DC FROM RF PORTS TO GROUND.